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THEN, NOW, AND IN THE FUTURE

A thesis presented to the faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

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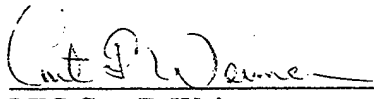
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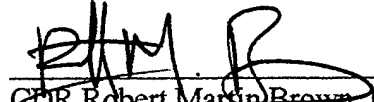
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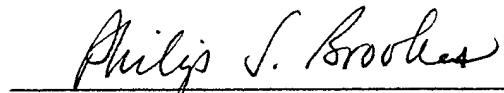
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other government agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE PATROL COASTAL SHIP: THEN, NOW, AND IN THE FUTURE by LCDR Brian D. Petersen, U.S. Navy, 66 pages.

This thesis examines the development, design, and funding of the Patrol Coastal (PC) Ship. This thesis gives an explanation of the PC's capabilities, doctrinal roles, and functions. The author uses naval special warfare (NSW) and joint publications to enhance understanding and to determine if the PC is a viable asset for naval special operations forces.

The author used a survey and a set of interviews to question NSW personnel as to their knowledge, attitudes, perceptions, and insight on the PC's capabilities, seeking any experience with the PC by NSW personnel. The author translates this experience into how to best use the PC and how to modify or improve its capabilities.

By all accounts the PC is versatile and inexpensive to operate. It gives the NSW community an asset that is capable of extended operations, greater connectivity with all levels of operations, and increased employment options for all future NSW assets.

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LIST OF ABBREVIATIONS

AAW	Antiair Warfare
AFFOR	Air Force Forces
AFSOF	Air Force Special Operations Forces
AMW	Amphibious Warfare
ARFOR	Army Forces
ARSOF	Army Special Operations Forces
ASUW	Antisurface Warfare
AOA	Amphibious Objective Area
AOR	Area of Responsibility
ARG	Amphibious Ready Group
CCC	Command, Control and Communication
CIA	Central Intelligence Agency
CM	Corrective Maintenance
CNO	Commander Naval Operations
CNSWC	Commander Naval Special Warfare Command
CNSWCDEVGRU	Commander Naval Special Warfare Command Development Group
CNSWCEN	Commander Naval Special Warfare Center
CNSWG	Commander Naval Special Warfare Group
CNSWTG	Commander Naval Special Warfare Task Group
COCOM	Combatant Command

CRRC	Combat Rubber Raiding Craft
CRYPTO	Cryptographic
CSBR	Commander Special Boat Squadron
CT	Counter Terrorism
C2	Command and Control
C2WC	Command and Control Warfare
C3W	Command, Control and Communication Warfare
DA	Direct Action
DOD	Department of Defense
EMCON	Emission Control
GENSPECS	General Specifications
FID	Foreign Internal Defense
FLIR	Forward Looking Infrared
FSO	Fleet Support Operations
GPS	Global Positioning System
HF	High-frequency
HUMINT	Human Intelligence
IMAV	Intermediate Maintenance Availability
INTEL	Intelligence
ISIC	Immediate Superior in the Chain of Command
JSCP	Joint Strategic Capabilities Plan
JTF	Joint Task Force

LIC	Low-intensity Conflict
LOC	Lines of Communications
LOE	Light-off Examination
LOS	Line of Sight
MARFOR	Marine Forces
MOB	Mobility
MOOTW	Military Operations Other Than War
MST	Maintenance Support Team
MW	Mine Warfare
NAVFOR	Naval Forces
NAVSO	Naval Special Operations Forces
NCA	National Command Authority
NCDU	Navy Combat Demolition Units
NCO	Noncombatant Operations
NSW	Naval Special Warfare
NSWC	Naval Special Warfare Command
NSWTG	Naval Special Warfare Task Group
OPCOM	Operational Command
OPCON	Operational Control
OSS	Office of Strategic Services
PB	Patrol Boat
PBC	Patrol Boat Coastal

PC	Patrol Coastal
PHM	Patrol Hydrofoil Missile
PLO	Platoon Leader Orders
PM	Preventative Maintenance
PSYOP	Psychological Operations
RHIB	Rigid Hulled Inflatable Boat
ROC & POE	Projected Operational Environment and Required Operational Capabilities For PC-1 (Cyclone) Class Patrol Coastal Ship
RSG	Ready Support Group
SBR	Special Boat Squadron
SBU	Special Boat Unit
SDV	SEAL Delivery Vehicle
SEAL	Sea, Air, and Land
SHP	Ship Horsepower
SIMA	Ships Intermediate Maintenance Availability
SOC	Special Operations Command
SPOD	Seaport of Debarkation
SR	Strategic Reconnaissance
UDT	Underwater Demolition Team
UHF	Ultra High Frequency
USS	United States Ship
USSOCOM	United States Special Operations Command

UW	Unconventional Warfare
VHF	Very High Frequency

GLOSSARY

Bilateral. Operations conducted between militaries of two or more nations.

Blue Water. The area of operations from six to eight miles from shore and seaward.

Brown Water. The area of water inland on rivers and navigable waterways from the shoreline.

Circular of Requirements (COR). A document drafted by the Department of the Navy which describes the general, mission, capabilities, and operational requirements of the Patrol Coastal. This documents identifies basic armament, crew size, and physical characteristics of the ship.

Command at Sea. The designation of the Commanding Officer of a commissioned United States Ship. This designation grants certain legal, punitive, and non-punitive responsibilities in accordance with Navy Regulations and the Uniform Code of Military Justice.

Commissioning. The formal ceremony designating a vessel as a United States Ship (USS).

Conditions of Readiness. The status of how the ship is manned. Whether certain pieces of equipment are operating, certain water tight integrity precautions are made, and what level of combat a ship is prepared for.

Cueing. Passing of information on friendly neutral or hostile surface, subsurface or air contacts, to include location, course, speed, altitude, or perceived intentions.

Emission Control. The status of electronic transmitting equipment. Whether the equipment is allowed to be transmitted from or radiated, based on enemy capabilities and location and the operating frequency and power of the specific equipment.

Fast cruise. A simulated "day at sea" for a vessel while tied securely to a pier or at anchor. This trains the ship to be able to properly position its crew for all conditions of readiness and evolutions.

Fleet Mentality. The basic problem solving and operational training that a sailor becomes accustom to when operating on US Navy vessels.

Footprint. The amount of operational and support personnel and equipment required to conduct a mission. Generally associated with the size of the unit required to be placed on foreign soil.

Green Water. The area of operations from blue water to the shore.

Hard Kill. To destroy a target with missiles or guns.

Light Off Examination (LOE). The administrative and operational evaluation that a commissioned US vessel is required to complete before allowed to operate independently.

Littoral Warfare. Warfare conducted in the littoral waters of the world. Generally considered from the point that the surf begins to the horizon.

Letter of Operational Requirements (LOR). A document produced by the Navy to identify characteristics required of an asset under consideration for development.

Projected Operational Environments and the Required Operational Capabilities of the Patrol Coastal (ROC & POE). A document that details and describes the mission areas and operational capabilities for which the Patrol Coastal was designed and organized. (ROC & POE)

Replenishment. Refueling and reprovisioning a ship. This can be conducted either while the ship is at anchor, tied to a pier or underway.

Tenet. A principle, doctrine or belief held as true.

Track. The direction of a ships movement.

Safe to Steam. This term is used when a ship has satisfactorily completed a major engineering inspection such as an LOE.

Sea State. The combination of the prevalent wave height and wind.

Soft Kill. Defeating the enemy through the use of electronic means, denying the enemy locating data, or distracting an inbound missile by the use of a decoy.

Type Commander. The Command that funds, mans and trains an asset or unit.

United States Ship (USS). The designation given to a vessel that is formally commissioned. This vessel is commanded by a commissioned officer designated as the Commanding Officer.

CHAPTER 1

INTRODUCTION TO THE PATROL COASTAL

In 1988 the Naval Special Warfare Command (NSWC) and the Commander United States Southern Command (USSOCOM) developed a Patrol Coastal (PC) vessel many believed would play a significant role in the defense of the United States. Today, however, the PC's primary mission and capabilities remain largely underestimated and unfamiliar to individuals in the special warfare community and the Navy. The acquisition and design process of the vessel, the urgency associated with its procurement, and its designation as a United States ship (USS) contribute to the misunderstanding. Therefore, this thesis asks: Does the PC meet the requirements of Naval Special Operations Forces? Bollinger Machine Shop and Shipbuilding constructed the vessel to specific design parameters identified in a *Letter of Operational Requirements*¹ and *Circular of Requirements*.² Were these documents derived from historical tenets and characteristics of special operations? The Naval Special Warfare (NSW) community owns and operates the PCs, which have been in service for five years. Are NSW forces familiar with the capabilities of the PC?

NSWC and USSOCOM designed the PC as a replacement craft for the NSW MK III Patrol Boat (PB) and as an asset for USSOCOM to conduct maritime operations anywhere in the world. When the designation changed from Patrol Boat Coastal (PBC) to a commissioned USS, administrative and operational requirements changed. These changes led to misperceptions of the ship's focus by many of those who manned,

administrated, and operated the vessel. This study is an in-depth look at the PC, to answer the research questions and to examine the results of a survey administered to the NSW community on their knowledge and belief in the vessel's utility.

To understand the development of the PC during its inaugural years, a study must be made of the genesis of its design, development and procurement, and its operational chain of command, manning levels and initial training, and work-up cycle reviewed. Chapter 1 focuses on the development and procurement of the PC ship. Subsequent chapters identify doctrinal aspects of NSW and the *Projected Operational Environments (POE) and Required Operational Capabilities (ROC) for PC-1 (Cyclone) Class PC Ships (U)*.³ This thesis also contains a survey designed and administered to measure the knowledge, attitudes, and perceptions of NSW personnel concerning this \$13 million PC.

In 1988 NSWC and USSOCOM identified requirements for a vessel to replace the MK III PB, a 65-foot vessel built between 1973 and 1977 partly in response to the Vietnam conflict, used extensively in Central and South America for riverine and coastal operations. The need for an updated boat became apparent in 1987 when the MK IIIs proved inadequate for conducting open-ocean operations. During Operation *Earnest Will*, the escorting of U.S. flagged Kuwaiti tankers in the Persian Gulf, the boat could not safely navigate the seas and conduct escort or boarding missions. Admiral J. W. Nyquist, Assistant Chief of Naval Operations for Surface Warfare, stated in a Chief of Naval Operations (CNO) memorandum that there was no craft in the inventory that could replace the MK III. "Standard designs were not capable of providing the requirements laid out in the *Letter of Operational Requirements* or in the naval warfare publications

and fleet and unified commander-in-chiefs' operations plans."⁴ Additional correspondence in August 1990 by Admiral Nyquist stated the reasons for and the urgency attached to a replacement vessel:

The PBs are inadequate for current mission requirements. They lack the required speed (35 knots--max, 25 knots--cruise), endurance (10 days), seaworthiness (survive in sea state 5), embarked troop capacity (eight SEALs and their equipment), and the capacity to receive future weapon systems of the PBC.

Although they are inadequate for current missions, the US Navy is forced to use the PBs because nothing else is available. The continued employment of the PBs in situations like Grenada, Panama, and the Persian Gulf presents significant risks to squadron personnel, mission execution, and their operational availability.

Urgent requests for patrol boats from allied nations cannot all be filled because of a lack of assets. Any requests that are filled reduces the number of boats available to our special boat squadrons.

The procurement of the PBCs has been delayed 12 months from the original schedule. Any further delay is now considered contrary to our national security. Recent developments in the Persian Gulf and Central America have made it clear that there is a compelling and immediate requirement to place the PBC in service in order to meet existing and continuing mission requirements. Therefore, continuing performance of the PBC contract is required and further delay would be contrary to the interest of national defense.⁵

The new vessels would need to operate near land yet have the sea-keeping capacity to conduct "blue water" warfare. Specifically, they would have a draft of 8 feet, be capable of transiting 2,000 miles unaided, and survive through sea state 5 (waves of 12 to 15 feet).⁶ NSW forces needed a vessel to meet parameters identified in the *Letter of Operational Requirements*.⁷ To satisfy these requirements, the vessel would be 170 feet in length with a beam of 25 feet and weigh 310 tons; it would not be a 70 to 90 foot look-alike of the MK III it was to replace. This physical difference is significant. The *Circular of Requirements*⁸ describes the vessel's exact parameters and identified the need for an initial operating crew of seventeen, including officers and enlisted personnel.

The final design requires almost double the predicted personnel and an overall size twice that of the craft it was to replace.

Initially, the NSW community was unaccustomed and, in my opinion, only marginally capable of administering a 170 foot ship. The special boat squadrons (SBR) lacked the technical expertise and personnel to train adequately and to support and conduct operations using the PC. PC operations necessitated the creation of a support organization, the maintenance support teams (MST), to help with preventive and corrective maintenance and supply functions. Although fully staffed, the MSTs lacked key infrastructure requirements (buildings and equipment). None of the SBR departments, from operations and administration to engineering and medical, had previously administered or provided support to a commissioned USS. The formal commissioning and designation of the PC as a USS added unique and unforeseen challenges to the SBRs, their MSTs, and their crews.

Legally, a USS is built in the United States.⁹ A commanding officer has charge, and the ship has certain sovereign immunities and rights. The officers and crew have a different attitude and perspective toward many aspects of administration and operations from those who operate a boat or craft. Having a designation as a ship infuses crews with a "fleet mentality"--the approach to operations and problem-solving that Navy officers and enlisted personnel learn from the beginning of their enlistment. To those unfamiliar with ship operations, the difference between a boat and a ship may seem small. To the individuals who man, operate, maintain, and certify ships, the differences are obvious and significant.

In January 1991 the Chief of Naval Operations (CNO) asked, "Why can't I commission these 170 foot PBCs?"¹⁰ The CNO saw the PCs as an opportunity for his junior officers (lieutenants) to receive the "Command at Sea" designation, providing them greater responsibility than was currently available. Since the decommissioning of the Patrol Hydrofoil Missile ships (PHMs) no lieutenant commands existed in the Navy. By designating the PC a USS, the CNO could provide such experience for officers and enlisted personnel.

A ship has a hull number and a class name. A ship is built to general specifications (GENSPECS).¹¹ Boats are built to entirely different standards. "The PCs are tailored to commercial standards such as United States Coast Guard, American Bureau of Shipping, and the Institute of Electrical / Electronic Engineers Standards."¹² The PC's designation as a ship came after the contract was approved. The initial certification and inspection of the vessels are identical to the requirements of traditional Naval ships with special consideration for structural integrity, crew size, and administration capabilities.¹³ The Navy refers to these initial certifications as Light-Off Examinations (LOE).

The LOE certifies a ship's ability to conduct general engineering, fire fighting, and safety operations. Passing the LOE completes half a ship's requirement before it is considered "safe to steam" and allowed to operate independently. The second half of the requirement is a fast (practice) cruise that tests the crew's ability to conduct various shipboard evolutions including a simulated navigation scenario. The crew conducts this test while the ship is tied safely to the pier. The PC's Type Commander, the organization

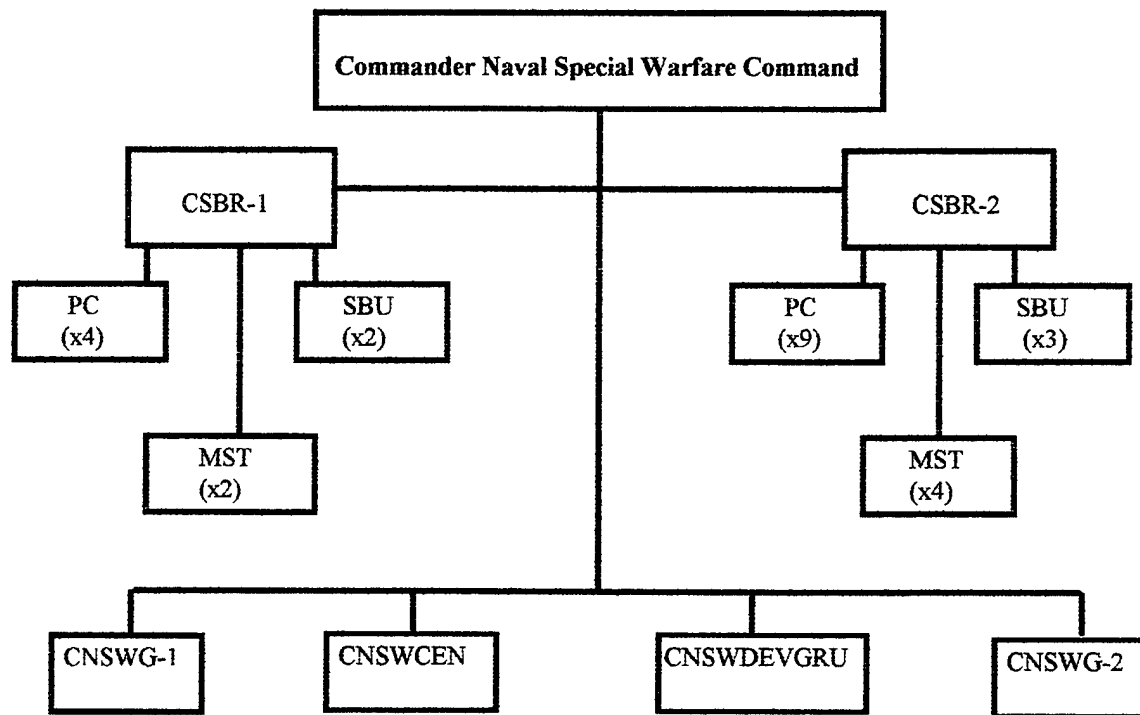
that provides the ship's funding and manning, NSWC, supports the ship during this process. Before the PC, NSWC was not experienced in this certification process.

The requirements for certification of traditional US Naval vessels are applicable to the PC. As part of the delivery process of a USS from the shipbuilder to the Navy, the crew and ship undergo a series of assessments before final qualification. Fleet agencies develop and design the documents used to train and certify the ship and crews. The approach, disposition and demeanor required to complete this grueling process further infuse the fleet mentality into the ship's crew.

After completing initial certification, the ship is assigned to one of two SBRs. Special Boat Squadron Two operates nine PCs. Special Boat Squadron One operates four. The ship's Type Commander and the Immediate Superior in the Chain of Command (ISIC) for the boat squadrons is NSWC in Coronado, California. (See Figure 1.) These commands man, supply, and train the PCs to deploy worldwide in response to theater commanders-in-chief requirements.

The ships were certified and built to fleet standards, yet commissioned to train and fight almost exclusively for the SBRs performing special warfare operations. During initial deployments fleet commanders used the ships to conduct missions with larger fleet units. Fleet commanders frequently tasked PCs with opposition-force roles, barrier patrols, or other missions the ships were capable of performing but not designed for. This practice continued until the fall of 1996 when PCs 9 and 10 deployed to the European theater and worked for Commander Naval Special Warfare Task Group Sixth Fleet (NSWTG). NSWTG Sixth Fleet was a Naval Special Warfare Commander and

staff group tasked with controlling the PCs and all NSW assets in the Sixth Fleet's area of responsibility (AOR).



CNSWG-1 - Commander Naval Special Warfare Group One
 CNSWG-2 - Commander Naval Special Warfare Group Two
 CNSWCEN - Commander Naval Special Warfare Center
 CNSWDEVGRU - Commander Naval Special Warfare Development Group
 CSBR-1 - Commander Special Boat Squadron One
 CSBR-2 - Commander Special boat Squadron Two
 MST - Maintenance Support Team
 PC - PC
 SBU - Special Boat Unit

Figure 1. Line diagram of command relationships

Establishing the NSWTG Sixth Fleet greatly improved the PC's utility and employment in the European theater. Captains or commanders assigned to the NSWTG reported directly to the Commander Sixth Fleet as the NSW representative. Before PC 9

and 10's deployment, NSW did not establish a special warfare operational commander. This affected the tasking of the initial deployments of PCs by the Sixth Fleet Commander. PCs are minimally manned and shipboard requirements are such that this additional level of administration is required for the ship to operate in anything but the most simplistic scenarios. The difference between a PC being tasked by a NSWTG who is familiar with requirements and capabilities of a PC or being tasked by a battle group commander or fleet commander who is not, is significant. Sixth Fleet deployments that had a NSWTG staff coordinating operations for all NSW units in the AOR used the PCs in joint and bilateral operations with Spanish, British, and Danish Special Forces. These operations were conducted safely and professionally because people accustomed to special operations and working with PCs directed the coordination and administrative requirements at the Sixth Fleet level. The ships received the required information in the accustomed format and quantity to professionally complete assigned missions. Their 28-man crews were not overwhelmed with insignificant messages and information.

A PC's captain is a senior Navy lieutenant, typically with 8 to 10 years of service. His officer contingent consists of two junior lieutenants with 4 to 6 years of experience and a warrant or limited duty officer with 12 to 16 years service. There are four separate departments containing 24 enlisted crew members. The engineering department consists of approximately 12 personnel. The weapons, deck, and operations departments total another 12, for an enlisted crew size of 24. (The SBR and the MST assist in administration, medical, supply, and a large portion of materiel readiness and maintenance operations.) This manning level is necessary for conducting a US Navy

ship's day-to-day operations. However, the ship can become overwhelmed when tasked with complicated training scenarios or real-world operations without a fully manned NSW staff to handle mission assignment, liaison requirements, host-nation coordination, and myriad other functions. The crew cannot adequately perform these tasks and still give commensurate preparation to mission execution.

PC vessels have a history unlike any other ship in the Navy. One viewpoint suggests the PC's development has not evolved exactly as envisioned. This viewpoint sees the vessel as being designated incorrectly and placed under the control of a command unaccustomed to its operation. Another viewpoint is that the PC fulfills the NSW community's requirements and has been correctly placed under the command of the individuals it was meant to support. The real answer lies somewhere between.

¹ Letter from the Office of the Chief of Naval Operations, OR *Operational Requirements*, #238-03-88, (12 December 1988).

² Department of the Navy, Naval Sea Systems Command, *Circular of Requirements*, 15 September 1989, (Revision 2).

³ Department of the Navy, *Projected Operational Environment (POE) and Required Operational Capabilities (ROC) for PC-1 (Cyclone) Class PC Ships (U)*, (1 February 1994).

⁴ MEMORANDUM from the Office of the Chief of Naval Operations, Ser 03/8U2126, (14 October 1988).

⁵ MEMORANDUM from the Office of the Chief of Naval Operations, Ser 03/0U586449, (24 August 1990).

⁶ *Operational Requirements*.

⁷ *Ibid.*

⁸ *Circular of Requirements.*

⁹ Dennis Doyle, Joseph Mayer, Naval Sea Systems Command, *The Evolution of PC From Boat to Ship*, May 1992, 1.

¹⁰ *Ibid.*

¹¹ *Ibid.*, 4.

¹² *Ibid.*, 4.

¹³ *Ibid.*, 5.

CHAPTER 2

LITERATURE REVIEW

This chapter analyzes documentation, historical lessons learned, and doctrinal tenets of NSW for comparison to and alignment with specific Patrol Coastal capabilities. By understanding the ship's capabilities and the historical and doctrinal tenants of special operations, one may make a determination whether the Patrol Coastal meets Special Forces' requirements.

USSOCOM Publication 1, *Special Operations in Peace and War*¹ gives an excellent account of the history of special forces and insight as to the requirements of people and equipment in this type of warfare.

Special operations have been a part of American military history since the colonial era. The origins of SOF are epitomized by such figures as Major Robert Rogers (leader of the New England Companies of Rangers) in the French and Indian War, and the American Revolutionary War guerrilla leader Francis Marion ("the Swamp Fox") and Sergeant Ezra Lee, who used David Bushnell's oaken submersible Marine Turtle to attack the English frigate *Eagle* in New York Harbor in August 1776.²

SOF has been involved in virtually all of America's conflicts and struggles. In the post-Civil War frontier campaigns, special forces used guerrilla warfare tactics for fighting Indians, escorting settlers across the prairie, and helping defend homesteads. During the 1899 Philippine Insurrection, unique and highly trained operators gathered intelligence and led revolutionary bands of Philippine guerrillas. However, the formal establishment of a special forces branch did not occur until World War II with the founding of the Office of Strategic Service (OSS). The OSS, forerunner of Central

Intelligence Agency (CIA), gathered intelligence and conducted psychological operations (PSYOP) and sabotage in enemy territory. The OSS worked with allied special forces and was an integral part of every campaign during World War II.

All major amphibious operations from Operation *Torch* in North Africa to the Normandy invasion of France used special forces for a variety of missions. The requirements of these missions necessitated a unique, highly trained, and ingenious group of individuals. These forces were designated Navy Combat Demolition Units (NCDU) and Underwater Demolition Teams (UDT). Like their Army counterparts, Merrill's Marauders and Alamo Scouts, UDTs required resupply and unconventional support when behind enemy lines. The Army Air Force created units to provide this support. The US military modified planes and equipment and organized the best pilots the Air Corps had, designating them "Special Flight Sections." Each service then had a special forces capability.

Special forces played an increasingly vital role in every conflict since World War II. Many times they conducted operations in support of conventional forces, as in Korea and the Gulf War. However, in smaller scale conflicts, they were often major players, as in Operations *Urgent Fury* and *Just Cause*.

Characteristics of special operations during World War II formed the baseline for future employment and training of special forces. These historical lessons learned and operational characteristics, extracted from USSOCOM Publication 1 are not radically different from how special forces operate today.

- * [They required] secrecy and deception to achieve surprise.
- * Frequently, they were joint and combined.

- * They sometimes required close interdepartmental, interagency, and even international coordination.
- * They were conducted in hostile or denied territory, far from established bases.
- * They required sophisticated or nonstandard means of infiltration, exfiltration, communications, and support.
- * They often entailed great risks.
- * They required speed, simplicity, audacity, and flexibility.
- * They were conducted against strategic or operational targets.
- * They lacked integration into conventional campaign plans, denying unity of command.
- * [SOF] Doctrine was not available to aid conventional planners.
- * Conventional commanders sometimes perceived that a disproportionate share of resources (especially highly talented and capable volunteers from the regular units) were devoted to what some considered to be low-payoff special operations.
- * Special operations units:
 - Required special training and equipment.
 - Were often specifically tailored for each mission.
 - On occasion, suffered heavy casualties because of miscalculations by commanders or being assigned inappropriate missions.³

The Vietnam War provided several lessons learned about the use of SOF.

Political and interservice rivalries added to the list of difficulties. A summary of these lessons learned follows:

- * Special Operations were not fully integrated into theater campaign plans, which diminished the operational effectiveness of SOF.
- * Rivalries between SOF and conventional forces were counterproductive.
- * Rapid expansion of SOF sometimes led to dilution of overall quality and effectiveness of some special units.
- * Unconventional warfare alone could not defeat an enemy possessing the will and the means to conduct a combined political, economic and social campaign, in addition to military operations.
- * Only a thoroughly integrated, interagency campaign that addressed all facets of an insurgency could be successful against a well-led and determined foe.
- * Although each service for the first time developed its own special operations doctrine, the United States still had no joint SOF doctrine.⁴

The organization of current special forces dates to the 1987 reorganization of the Department of Defense (DOD). DOD established and gave the United States Special

Operations Command the command over the three individual Services' Special Operations Branches and a newly established Joint Force. These new special forces commands are the Naval Special Warfare Command, Air Force Special Operations Command, US Army Special Operations Command, and the Joint Special Operations Command. Two years later Operation *Just Cause* occurred. More lessons learned and tenets of special warfare resulted.

- * SOF can be placed under the command and control of the Joint Task Force and achieve great synergy with conventional force operations.
- * A well-developed, fully rehearsed plan is the key to success.
- * Every contingency operation must have a carefully prepared post-conflict plan.⁵

Operations since *Just Cause* include *Desert Shield / Desert Storm*; Task Force Ranger deployment to Mogadishu, Somalia; and *Operations Restore Democracy / Maintain Democracy* in Haiti. A summation of operations and lessons learned from these conflicts include the following:

- * Foreign internal defense missions retrained and reequipped six Kuwait brigade units, one commando battalion, and the Kuwait Navy.
- * Coastal deception operations and fleet support [were assigned to SOF].
- * SOF are truly effective when fully integrated into the theater campaign plan.
- * Despite high-technology sensors, human eyes on target are absolutely essential to deep interdiction operations.
- * The complexity of special operations within a theater campaign warrant putting a flag or general officer in command of the Theater Special Operations Command.
- * Tactics, techniques, and procedures must be evaluated constantly and altered when appropriate.
- * SOF command and control elements, as well as liaison and coordination elements should integrate SOF at all levels.⁶

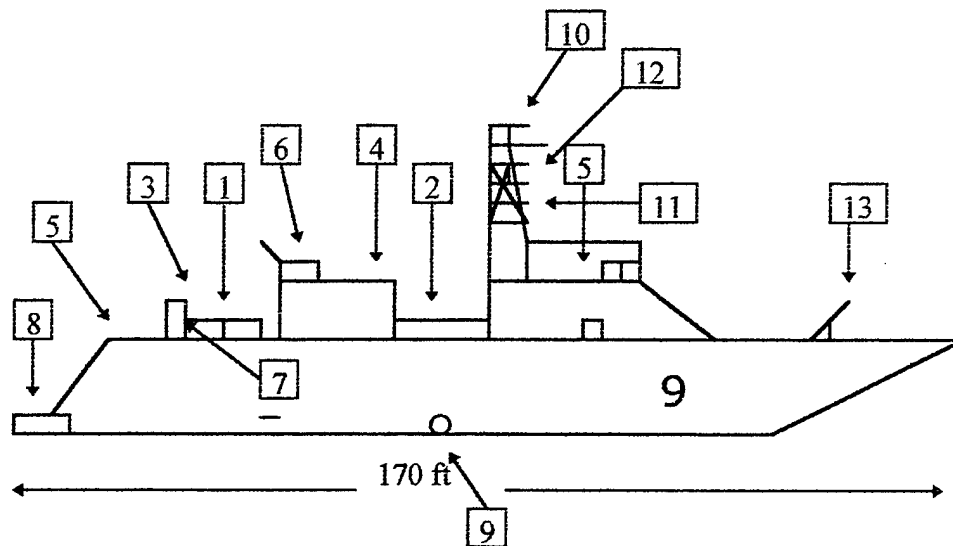
These and other lessons learned by special forces led SOF to establish truths, values, and characteristics for special operations. These SOF truths or tenets stress the

individual's role as part of a small team, with the proper training and focus, capable of producing results much greater than a unit of that size would seem capable--a true force multiplier. This force multiplier is not possible, however, without concise and timely connectivity to higher authority. This is also a fundamental tenet of special warfare.

Without proper connectivity, mission orders and the ability to report and seek command guidance make mission execution difficult, if not impossible. The transfer of special information to SOF personnel is vital to mission success. SOF require extremely detailed intelligence. Minute details, like the direction a door opens, may alter, however slightly, the character of a SOF mission. Passing this information quickly, securely, and precisely is vital. The medium through which this information must pass can be very different from mission to mission and even from phase to phase in a given mission. Initial information may pass over satellite data transfer circuits. Subsequent information passage may require very high frequency (VHF) or ultra high frequency (UHF) transmission to maintain security. Finally, once in country, SOF may need to pass by way of a high frequency (HF) link vital on-site information to joint or combined forces.⁷

The *Patrol Coastal Class Tactical Manual* states that USSOCOM designed the Patrol Coastal Ship to support maritime operations of NSW.⁸ The PC ship is under the Combatant Command (COCOM) and Operational Command (OPCOM) of the US Special Operations Command. The intermediate level between these commands and the PC ship is NSWC and the SBR. Materiel and maintenance requirements flow through the same chain of command and are conducted by an MST. The Commander in Chief, Special Operations Command, arranges intermediate and depot-level maintenance.

Traditional fleet Ready Support Groups (RSG) and Ship Intermediate Maintenance Availability (SIMA) facilities conduct maintenance. This organizational structure maintains the ship to support special forces missions.



- | | |
|---|--|
| 1. Twenty foot rigid hulled inflatable boat (RHIB)* | 8. Swimmer platform |
| 2. Sixteen foot combat rubber raiding craft (CCRC) | 9. Stabilizing fin |
| 3. Hydraulic boat crane* | 10. Sperry RASCAR surface search radar |
| 4. Stinger station | 11. Sperry RASCAR navigation radar antenna |
| 5. Machine gun pintles | 12. Flir VISTAR tracking head |
| 6. MK-98 25-mm gun | 13. MK-38 25-mm gun |
| 7. MK-52 decoy/chaff launcher | |
- * RHIB and crane are being replaced by a combatant craft retrieval system (CCRS) on PC-9. This ramp and hydraulic system is being tested to insert and extract up to a 10-meter RHIB and the NSW SEAL delivery vehicle (SDV).

Figure 2. Patrol Coastal external configuration

The Patrol Coastal's primary mission is maritime support of Naval special forces through insertion and extraction, tactical swimmer operations, intelligence gathering, cover and deception, command and control of special forces, and coastal and riverine

operations. Secondary mission requirements include monitoring and detecting, presence operations, noncombatant operations, and conventional coastal patrol and interdiction.

The Patrol Coastal ship conducts operations in day and night situations. The ship has four screws, two rudders, and fin stabilizers on each side of the hull just below the waterline. Designed to operate in seastate 3 (6 to 8 foot seas) and survive in seastate 5 (12 to 15 foot seas) the ship is extremely seaworthy. However, these limitations depend on wind direction and speed, wave periodicity, and the direction and height of the sea swell related to the ship's track.

The propulsion system consists of four Paxman diesels, rated at 4,000 ship horsepower (SHP) each, although a mechanical throttle limits the engine to 3,350 SHP. One can negate this limitation by altering the current rack governor setting. (If speed and weight requirements mandate.) The maximum ship's speed is 35 knots. At 12 knots the ship can transit 2,000 miles without refueling. The horsepower to weight ratio of the Patrol Coastal is 7 to 1, which is the highest ratio the Navy has ever built. Naval frigates operate at approximately 50 to 1. This means the Patrol Coastal reaches top speed in around 30 to 45 seconds. This is extremely fast for a craft weighing 312 tons. The electrical plant boasts two diesel generators rated at 155 kilowatts each. This capacity is more than adequate for shipboard requirements.

Tables 1 and 2 identify major operations equipment designed to assist the ship in successfully conducting its missions in support of NSW forces. What is important to note from these tables is that this equipment is not unique to the Patrol Coastal. Commercial merchant ships and pleasure craft have the same exact gear. By placing the

ship in the proper emission control (EMCON) status, the Patrol Coastal masks itself from positive identification by enemy sensors.

Table 1. Patrol Coastal operating equipment nomenclature

EQUIPMENT	DESIGNATION
Surface Search Radar	Sperry 2500-314S
Navigational Radar	Sperry 2500M-27X
Video Platter System	NWS 1000
Loran C	RAYNAV 780
Omega	JLA-104
Global Positioning System (GPS)	Raystar 920
Emergency Indication Radio Beacon	CEGT-ACR/RL3-14
Depth sounder system	AN/SQN-18X
Speed Log	SRD 331
WESMAR Scanning Sonar System	SS 460-8rgb
Gyro compass	MK 27 MOD 1
Auto Pilot Steering System	SRP 680
Anemometer	Weather Pak-500
FLIR Night Vision System	VISTAR IM 405
Magnetic Compass	C-561 HA

Table 2. Patrol Coastal external communications equipment*

BAND	EQUIPMENT	REMARKS
VHF/UHF	1 AN/VRC-83(V)2	Transceiver w/ECCM
	1 MCX 1000	Transceiver w/DES
	1 IC-M120	Marine Band Radio
	1 AN/VRC-92A	Transceiver
HF	2 AN/GRC-231(V)3	Transceiver
UHF	1 Ist-5C	LOS/SATCOM Transceiver
CRYPTO	1 TSEC/KY-58	
	2 TSEC/KG-84C	
NANCY	1 AN/SAT-2B	Infrared Signal Set

* Provides for virtually all bandwidths and frequencies and can transfer voice, data and video.

When conducting insertion and extraction operations with special warfare personnel, special forces provide small combat rubber raiding craft (CRRC), which the PC's crew launches either from a crane on the stern or directly over the side just aft of amidships. If required, the Patrol Coastal can supplement SOF equipment with a 19-foot rigid hulled inflatable boat (RHIB) that has twin 60 horsepower motors and two fully equipped CRRCs. Special forces do not normally use the RHIB for insertion because its design does not beach well nor handle surf as well as a CRRC, and it has a radar signature slightly greater than the CRRC's. Patrol Coastal 9 is modified. The shipyard replaced the RHIB and crane configuration with an extension ramp and track designed to launch and recover the CRRCs, the Naval special forces 10-meter RHIB and the SEAL delivery vehicle (SDV). In addition, an advanced screw and an extra fuel tank are being fitted to all Patrol Coastals to provide for greater speed, fuel economy, range, and noise reduction. These changes are in response to lessons learned provided from the inaugural years of service to the special warfare community.

Three water purification units installed on the Patrol Coastal provide 4,000 gallons each of water per day for the ship and crew. The vessel stores fresh water in two tanks containing approximately 6,000 gallons each. This capability to produce and store fresh water is well in excess of the crew's and embarked SEAL detachment requirements. There are three fuel tanks that hold slightly over 12,000 gallons. After modification, the ship can store an additional 4,000 gallons of fuel, which equates to over 30 percent of the current capacity and translates to greater on-station time and transit distances before refueling. Current transatlantic crossings take place in company

with an oiler that periodically refuels the Patrol Coastal. With the additional fuel capacity and screw replacement, this crossing could be completed without escort. There are no fuel purification systems on board except for a hand-stripping pump and an in-line filter arrangement to extract minor particulate matter and water. The ship can refuel at sea using the astern or alongside method. The replenishment unit can be another Patrol Coastal, a fleet oiler, merchant vessel, or almost any unit having the correct fuel transfer equipment and fuel quality.

When operating outside normal shore facilities, a "mother ship" concept is envisioned. This mother ship is a larger, more self-sufficient unit that provides basic stores, fuel, and maintenance assistance to the Patrol Coastal. Additional assistance may come in the way of communications, medical, dental, water, and electrical support as well as allowing the PC crew to use exercise equipment and facilities not available on the Patrol Coastal.

The *Patrol Coastal Class Tactical Manual* identifies two basic capabilities of the Patrol Coastal. They are; one, coastal patrol and interdiction and two, NSW support operations.⁹ Examples of coastal patrol and interdiction operations include the quarantine of Cuba during the Cuban Missile Crisis, interdiction of commerce in the deltas and along the shoreline of Vietnam during the Vietnam War, and the interdiction of small boat trade in and out of Iraq during *Desert Shield* and *Desert Storm*. The Patrol Coastal ship was not in service during these conflicts. However, it is easy to visualize the PC as a command and control platform for a SEAL platoon during these operations.

The PC crews train in permissive boarding techniques and procedures. If the Patrol Coastal encounters nonpermissive vessels, it offers an excellent marking or shotgun platform (meaning closely monitoring the suspect vessel and able to immediately fire on it if the situation dictates) or unit from which special forces can coordinate takedown procedures.

The *Patrol Coastal Class Tactical Manual* also describes five phases in coastal patrol and interdiction.¹⁰ The first phase is the search and / or surveillance phase. Higher authority cues a ship to a targeted vessel's location or places the ship in a surveillance patrol. For example, prescribing a barrier patrol when a suspect vessel is transiting a given axis. If there is limited information, but apprehension predicted in a specific area, a screen patrol is prescribed. Once contact occurs the interrogation phase of the interdiction operation begins.

Proper interrogation must take place to legally board, search, escort or seize a vessel. For example, the PC commander must recite the correct iteration, the most current sanction in law of the applicable United Nations sanction or international law and the suspect commander must have understood him. Required information during this tedious phase of the operation includes a description of numbers of passengers on board, hazardous cargo, home port, and latest port call and destination (along with registry and owner). After gathering the information, the Patrol Coastal, with guidance from higher authority, directs the vessel appropriately.

The action phase of an interdiction mission can be time consuming. If the suspect vessel is cooperative, this phase completes quickly. If the suspect ship does not

cooperate with course and speed recommendations for the boarding party to safely embark, the interdiction operation may require disabling or escorting the vessel until higher authority can direct appropriate action. In all coastal patrol and interdiction operations, maneuverability, speed, and communications connectivity is vital for successful mission accomplishment.¹¹

Training for interdiction operations requires two ship pairs. One conducts the boarding, and the other positions itself to provide support to the boarding team. Augmenting the ship's crew with special forces personnel or a Coast Guard Law Enforcement Detachment (LEO DET) is also an option. This augmentation allows for longer employment of the PC in interdiction operations. However, as noted previously, the primary mission of the Patrol Coastal is the maritime support of NSW.

Support to NSW forces by the Patrol Coastal takes on many forms. However, those forms are inherent in two basic applications--afloat command and control and launch and recovery. Each of these operations entails extensive planning and rehearsing and can become extremely complicated.

C2 for the Patrol Coastal includes intelligence gathering. The ability to properly identify an adversary and obtain information on his capabilities is key to any operation. With the addition of the Privateer electronics package, the Patrol Coastal can gather signal and communications intelligence along with infrared information. The Patrol Coastal transmits this information to the appropriate forces by secure or nonsecure means in voice, data, or photographic form. Special forces use this information to identify

enemy locations and force compositions and capabilities--key elements to successfully completing an operation.

The *Projected Operational Environment (POE) and Required Operational Capabilities (ROC) for PC-1 (Cyclone) Class Patrol Coastal Ships (ROC & POE)*, identifies where and how to operate the Patrol Coastal. The projected operational environments for the Patrol Coastal include:

- 5.
 - * At sea in wartime, operational in sea state 3, and survivable in sea state 5.
 - * Capable of performing all offensive and defensive functions simultaneously while in readiness condition I.
 - * Capable of performing all other functions which are not required to be accomplished simultaneously.
 - * Able to sustain readiness condition III at sea for periods of 10 days followed by 4 days in port for 22 consecutive weeks; this period may include scheduled upkeep periods as operational commitments allow and is followed by a 2- to 3-week intermediate maintenance availability (IMAV). (Note: the PC Class Maintenance Plan calls for an IMAV at 6-month intervals.)
 - * Underway preventative maintenance (PM) and corrective maintenance (CM) performed by the PC crew will be limited to mission essential requirements; nonmission-essential PM and CM will be scheduled for accomplishment in port with support from a dedicated maintenance support team (MST).
 - * Capable of supporting embarked NSW or law enforcement detachments (LEDET) of up to nine personnel. There is no support available for an embarked staff.¹²

These six items, when combined with the Patrol Coastal's capabilities, identify where and what the PC can accomplish. The first four items are operational and give a broad brush of what lies ahead in the document. Item 5 refers to the Patrol Coastal's logistics and maintenance and what evolutions it can accomplish while still supporting operational commitments. Item 6 identifies support capabilities and availability to other units. Support, as the ROC & POE presents and as I interpret, must be envisioned as

total reliance on the Patrol Coastal, because support can come in many forms, and a blanket statement indicating that no support is available for embarked staffs underestimates the Patrol Coastal's C2 capabilities and minimizes the NSW Staffs' flexibility. These projected operational environments give a summary of the conditions in which a Patrol Coastal would work. The second part of the document identifies the Patrol Coastal's ROC.

Given the previously detailed environments, eleven warfare areas establish the ROC. They are: antiair warfare (AAW), amphibious warfare (AMW), antisurface ship warfare (ASUW), command, control and communications (CCC), command and control warfare (C2W), intelligence (INTEL), mine warfare (MW), mobility (MOB), fleet support operations (FSO), NSW and noncombatant operations (NCO).

There are five readiness conditions. In each, the ship is either fully capable of or limited in some capacity to conducting various tasks related to these areas. Tasks may demand an external augmentation team or flexibility on the part of the ship's personnel. If a ship is limited in its capability to conduct a certain task, the limitation generally relates to a specific aspect of the task or a duration of time that the ship is capable of conducting the task. For the most part, augmentation from other special operations personnel does not occur to accomplish these tasks.¹³ Support, if required, comes mainly from the maintenance support team. What is significant is the detail to which Patrol Coastals receive training with the use of the ROC & POE. A brief explanation of readiness conditions, which are the foundations on which naval units man and fight, appears below.

CONDITION I: BATTLE READINESS

The ship is able to perform all offensive and defensive functions simultaneously; able to keep all installed systems manned and operating for maximum effectiveness; required to accomplish only minimal maintenance-routinely associated with watchstanding and urgent repairs. The maximum expected continuous crew endurance for Condition I is 24 hours.

CONDITION II: MODIFIED BATTLE READINESS

Condition II is Condition I battle readiness modified to meet particular imminent threats that are situation-dependent. The maximum expected continuous duration for Condition II is 10 days with a minimum of 4 to 6 hours rest provided per man per day.

CONDITION III: WARTIME / INCREASED TENSION / DEPLOYED CRUISING READINESS

Reduced defensive systems are manned to a level sufficient to counter possible threats. While in Condition III, the ship shall be capable of meeting the following criteria: able to keep installed systems manned and operating as necessary to conform with prescribed ROCs; able to accomplish all normal maintenance, support and administrative functions. Minimum expected crew endurance for Condition III is 10 days followed by 4 days in port, with opportunity for 8 hours of rest provided per man per day.

CONDITION IV: PEACETIME CRUISING READINESS

The ship is able to keep installed systems manned and operating only to the extent necessary for safe and effective ship control, propulsion, and security; able to accomplish all normal underway maintenance, support, and administrative functions; maximum advantage is taken of training opportunities; expected endurance is not constrained by personnel.

CONDITION V: INPORT READINESS

Condition V is for designated maintenance and training. The ship is able to keep installed systems manned and operating to extent necessary for effective operation as dictated by the existing situation; able to man watch stations as required to provide adequate security; able at all times to meet anticipated in-port emergencies and to perform in-port functions as prescribed by unit ROCs; maximum advantage is taken of training opportunities.¹⁴

The tasks the Patrol Coastal must perform to effectively combat both air and surface threats are similar. A ship must also provide self defense and operate with other units in defense of an area or force. Defense consists of identifying, tracking, and engaging airborne and surface threats. The Patrol Coastal lacks an air search radar, therefore, the crew must visually identify air threats. A "low flyer" setting on the ship's surface search radar is available. However, it has limited capability to track low-altitude aircraft. When working with units that have air search radar, that unit cues the Patrol Coastal to the location of the air threat. The crew can also use portable, hand-held missile systems, small-caliber gunfire (if the air threat is a low-altitude threat), and soft-kill tactics, using installed chaff launchers or radar reflective decoys to engage air threats. On-board identification or cueing by another asset accomplishes this soft kill tactic. Surface search radars and infrared sensors identify and track surface threats. To engage these threats, the Patrol Coastal employs small-caliber weapons fire and hand-held missile systems (if proper missile variants are available).¹⁵ The Patrol Coastal's ASUW capabilities encompass escort, diversion, and deception operations as well as the use of EMCON to defeat an enemy.

Using the Patrol Coastal in AMW can be extensive. Advance force operations is the most likely area in which the Patrol Coastal would be involved.¹⁶ Advance force operations include amphibious assault conducted before the main landing on a beach occurs. Examples of advance force missions are reconnaissance, strike, deception, and myriad other operations depending on the scenario. The Patrol Coastal would insert and extract NSW personnel and or Marine reconnaissance to conduct "pre-landing"

operations. The PC's shallow draught is advantageous in AMW if a seaport of debarkation (SPOD) does not permit larger vessels to moor and conduct offload. Granted, the Patrol Coastal does not have the capacity to offload the quantities of personnel and materiel larger amphibious units can. However, used with airborne and other surface assets the PC can become very useful. In its ASUW role, the Patrol Coastal is a force multiplier when conducting surface patrol of an amphibious objective area (AOA). Its shallow draught and speed make it ideal for coastal patrol, interdiction, and identification or destruction of enemy, friendly, or neutral shipping.

The Patrol Coastal's C3W; C2W; and INTEL capabilities are significant. Given the PC's ability to conduct near-shore operations, these warfare areas benefit greatly by use of the Patrol Coastal as an operational platform. The basic tenets of this type of warfare are the same for every Navy ship, and Army or Air Force intelligence team. The PC assigned these missions must be able to collect, process, display, evaluate, and disseminate information concerning the enemy. The Patrol Coastal has a communications suite that provides voice and data transmissions in satellite, ultra-high (UHF), very-high (VHF), and high frequencies (HF). Shipboard personnel can monitor these frequencies simultaneously and can configure them in a variety of ways. With the installation of the Privateer system, the Patrol Coastals can provide information concerning enemy location and activity. With proper personnel augmentation, human intelligence (HUMINT) collection efforts are possible and shipboard personnel can gather information on the disposition and number of enemy fleet and ground units. For ship or force self protection, shipboard personnel can collect and disseminate threat

information to all concerned. Personnel can continuously monitor and conduct tasks in these warfare areas in virtually all readiness conditions. Equipment like the Privateer system, makes these capabilities possible. The system is small and an easily installed INTEL gathering device.

FSO and MOB are basic shipboard capabilities. With the addition of the Patrol Coastal to the NSW inventory these qualities bring added flexibility and longevity to NSW operations. Shiphandling and astern refueling drills, and supplying emergency medical technicians (each ship has three trained and certified), comprise FSO requirements. However, MOB is much more encompassing and brings flexibility and utility to NSW forces.

A Patrol Coastal is "mobile" when it has proved it can conduct operations independently of other assets. Basic necessities, such as food, water, and shelter, come with the PC. Worldwide navigation and seamanship are capabilities that set the Patrol Coastal apart from other units in the NSW community. The ship can replenish itself with fuel and food while at sea and can store a 10-day supply of these commodities. However, 10 days is only a guideline, and the supply capability can and has been extended when circumstances such as sea state, replenishment asset availability and mission requirements demand.

NCO, MW and NSW operations, round out the PC's ROC. The tasks associated with these warfare areas are many. In noncombatant operations, the Patrol Coastal can provide clerical and supply support as well as messing and berthing facilities. The ship can provide a platform for testing and evaluating equipment and procedures. In a

controlled environment, the PC can provide evacuation of noncombatant personnel, using helicopter transfer of people and cargo while underway if needed (Proper documentation and safety considerations must be accounted for). There are many scenarios in which this method of transfer could be used.

Maritime law enforcement operations, including boarding of noncombatant vessels, is a mainstay of Patrol Coastal training, and ships are routinely assigned duties in the Caribbean and eastern Pacific. A Coast Guard detachment can and has embarked on a PC ship to conduct interdiction operations with other Navy assets and various DOD agencies. The PC can conduct such support in a specific patrol area or during a sortie from a port in response to intelligence information. The PC can remain on station for extended periods of time detecting suspect vessels and monitoring port facilities.¹⁷

NSW operations encompass the entire gambit of special warfare missions from direct action in a maritime environment, to reconnaissance and surveillance in support of special warfare, to delivery, insertion, and extraction of special forces. The PC can also support unconventional warfare. Support to raiding parties, foreign internal defense teams, and special warfare forces in strike warfare assignments are all tasks the PC rehearses and can accomplish.

No other asset owned by the NSW community can deploy virtually independently to theater, provide logistic and communications support, feed and house forces, and conduct the above-mentioned missions as can the Patrol Coastal. The changing face of warfare leads from the PC's tactical capabilities to the doctrinal employment of special warfare forces and an analysis of JP 3.05, *Employment of SOF*.¹⁸

Joint Publication 3.05 provides common ground and a basis for employment of SOF by all Services. Special operations are “conducted by specially organized, trained, and equipped military and paramilitary forces.”¹⁹ These unique individuals “influence, advise, train, and interact with foreign forces and populations.”²⁰ They conduct a unique type of warfare, characterized by “lethal, surgical, and discrete operations.”²¹ SOF are tasked with a diverse set of objectives and have unique support requirements. Whether involved in large campaigns or small crisis or humanitarian efforts, special forces may be tasked with differing roles when compared with the overall objective of an operation.

SOF have a much smaller footprint (the requirement for support and amount of personnel and equipment in theater) than conventional forces and are an attractive option for theater commanders. There is a plausible deniability aspect to special forces that conventional units do not possess. Special forces are quickly task-organized and rapidly deployed. If properly employed, these characteristics can be found in the Patrol Coastal.

Joint Publication 3.05 identifies special operations’ basic characteristics. They are principally offensive operations against high-value targets. If engaged unsuccessfully the first time, these targets generally offer no second chance, because the enemy knows that a target previously thought to be secure is vulnerable. Many targets are political in nature and require the oversight of the National Command Authority (NCA). Depending on a target’s location, special operations missions can require air or maritime assets as prominent players. Special operations can be covert or clandestine and therefore, are inappropriate or unfeasible for conventional forces. Operations special forces conduct rely on surprise supported by an extensive deception plan. Often target locations are

great distances from established basing sites. These missions are often part of a long-term commitment and can require continuous low- or high-technological equipment to accomplish. Above all, "Special operations are conducted by highly trained, motivated, and physically fit individuals with detailed intelligence and planning requirements."²² Again, one can see the Patrol Coastal in these environments and theorize its utility.

Title 10 of the *US Code* section 167, defines SOF as those units that meet one of the following criteria.

- * Identified as core forces or as augmenting forces in the Joint Strategic Capabilities Plan (JSCP), Annex E
- * Described in the terms of reference and conceptual operations Plan for the Joint Special Operations Command, as in effect on April 1, 1986.
- * Designated as SOF by the Secretary of Defense.²³

Theater commanders establish operational objectives for all forces in their AOR, including Title 10 units. These operational objectives run from "peacetime operations through hostilities short of war to full war."²⁴ In most scenarios, SOF support conventional forces. However, depending on the objective, SOF operations can become the main effort.

SOF conduct five principle missions: direct action (DA), strategic reconnaissance (SR), unconventional warfare (UW), foreign internal defense (FID), and counter-terrorism (CT).

DIRECT ACTION (DA)

Direct action operations are normally limited in scope and duration and usually incorporate a planned withdrawal from the immediate objective area. SOF may conduct these missions unilaterally or in support of conventional operations. In the conduct of DA operations, units may employ raid, ambush, or direct assault tactics; place munitions and other devices; conduct standoff attacks by fire from air, ground, or maritime platforms; provide terminal guidance for

precision-guided munitions; and conduct independent sabotage. Operations typically involve: (1) Attack on critical targets (materiel or personnel); (2) Interdiction of critical LOC or other target systems; (3) Location, capture, or recovery of designated personnel or materiel; (4) Seizure, destruction, or neutralization of critical facilities in support of conventional forces or in advance of their arrival.

SPECIAL RECONNAISSANCE (SR)

SR complements national and theater intelligence-collection assets and systems by obtaining specific, well-defined, and time-sensitive information of strategic or operational significance. SR is a HUMINT function that places US or US-controlled "eyes on target" in hostile, denied, or politically sensitive territory when authorized. These tactical reconnaissance activities focus on the objectives assigned to SOF and are conducted before, during, and after the execution of specific UW, DA, FID, and CT operations.

UNCONVENTIONAL WARFARE (UW)

UW includes guerrilla warfare and other low-visibility, covert, or clandestine operations, as well as subversion, sabotage, and intelligence collection. Guerrilla warfare consists of military and paramilitary operations conducted by irregular, predominantly indigenous forces in enemy-held or hostile territory. In UW, the intelligence function must collect, develop, and report information concerning the capabilities, intentions, and activities of the established government or occupying power and its external sponsors.

FOREIGN INTERNAL DEFENSE (FID)

FID operations support a friendly government facing a threat to its internal stability and security. The primary role of SOF in this US Government interagency activity is to train, advise, and otherwise assist host-nation military and paramilitary forces with the goal of the host nation being able, unilaterally to assume responsibility to eliminate internal instability. FID is not exclusively a SO mission. Rather, it is a joint and interagency activity in which SOF participate.

COUNTERTERRORISM (CT)

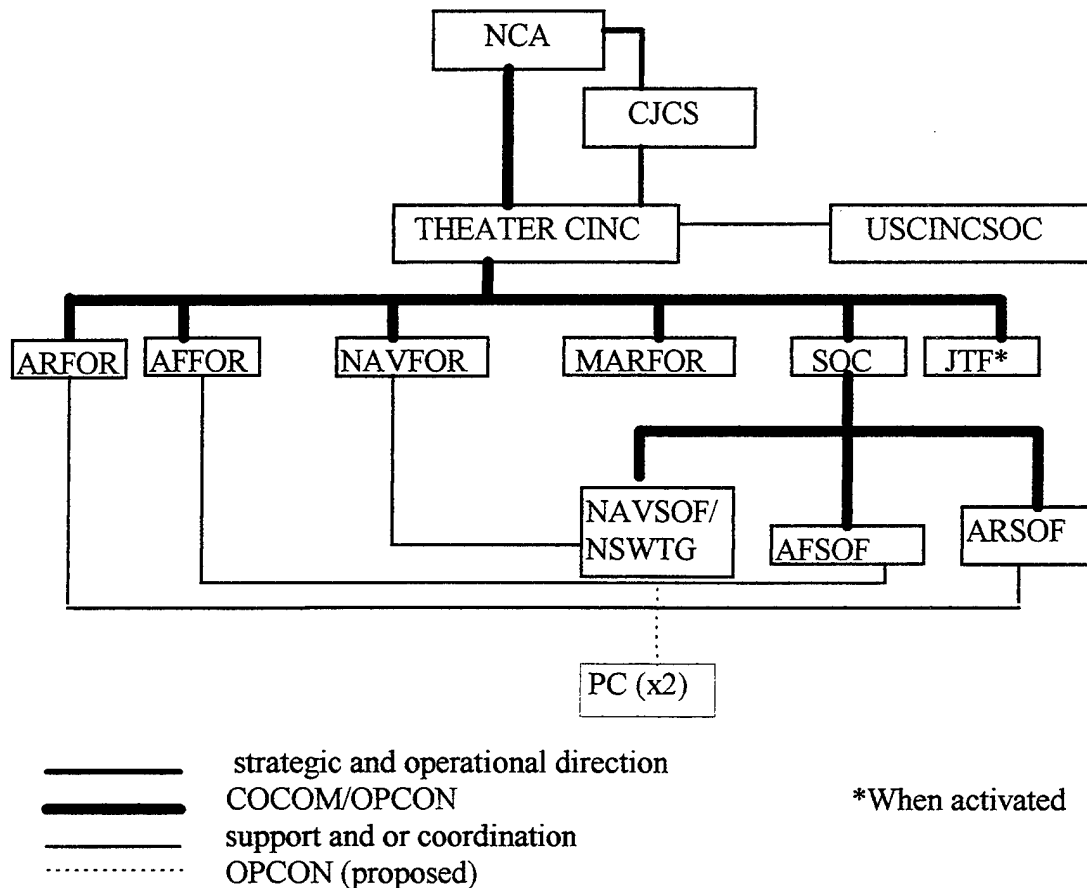
The primary mission of SOF in CT is to apply highly specialized capabilities to preempt or resolve terrorist incidents abroad. SOF conduct CT operations that include aspects of UW, DA, and SR missions to effect: (1) Hostage rescue; (2) Recovery of sensitive materiel from terrorist organizations; (3) Attack on the terrorist infrastructure.²⁵

SOF work with host-nation personnel and law-enforcement agencies to train individuals or conduct humanitarian missions or security assistance in operations-short-of-war and peacetime situations. In wartime, SOF generally conduct DA, SR, and UW operations. Operations that are neither in a peacetime nor wartime environment, yet fall out of the definition of operations other than war, are characterized as low intensity conflict (LIC). SOF can be used for FID and CT in this type of situation. SOF like all DOD units, do not use DOD equipment or personnel in domestic law-enforcement operations. However, there is an exception granted for drug-interdiction and drug-eradication operations, and SOF support these missions.

Command and control and the organization of SOF are vital cogs in the employment and success of special operations missions. C2 must not be excessively layered and must be responsive to individual unit requirements. If excessive layering of control occurs, it slows connectivity and can compromise security. There are various ways to employ SOF. A unified or subordinate unified commander or a joint force or service commander normally exercises OPCON. What is important is that lines of control are clear and as short as possible. It is vital that experienced special forces personnel plan, conduct, and support operations involving special forces and involve themselves throughout the entire chain of command.

Conventional Commanders also task special forces. For example, a Ranger Battalion under an Army Corps' OPCON to seize an airfield. A NSW Task Group is often assigned to an Amphibious Ready Group (ARG) Commander to conduct operations with Marine Reconnaissance Forces in direct action and strike operations. And, finally,

an Air Force Special Tactics Team could be placed under the control of an Air Force Command to supply terminal guidance for munitions. Most often, SOF will be under the OPCON of a Joint Special Operations Task Force working for the Joint Task Force Commander (JTFC).



Command relationships between SOF and Service commanders when OPCON is exercised through the theater commander²⁶

Figure 3. SOF command relationships with proposed PC inclusion

A vital requirement for these forces is the deconfliction of operations with those of conventional forces. Joint Publication 3-09, *Doctrine for Joint Fire Support* and JP 3-52, *Doctrine for Airspace Control in a Combat Zone*, discusses this deconfliction requirement in depth and will not be part of the focus of this thesis. However, deconfliction is a vital part of understanding the intricacies of SOF employment. In the end, the services establish various organizational structures to support special forces. Participants should understand the operational environment, period of involvement, objectives, and security considerations before selecting OPCON relationships.

Special operations are dependent on quality planning and mission preparedness. Planning for special operations is extremely time sensitive. SOF targets are many times only available for short periods. If there are unrealistic constraints on mission execution, special forces may not be able to expend the proper amount of time in conducting mission planning and rehearsal. Ultimately, personnel can become endangered. The Patrol Coastal has the facilities available for mission planning, space for equipment preparation and the communications connectivity with all DOD levels. The ship can be a player in special operations.

¹ USSOCOM Publication 1, *Special Operations in Peace and War*, (January 1996).

² Ibid., 2.1-2.2.

³ Ibid., 2-10.

⁴ Ibid., 2-16.

⁵ Ibid., 2-21.

⁶ Ibid., 2.22-2.26.

⁷ Authors personnel experience in Joint Task Force exercises and EUCOM deployment, July-December 1996.

⁸ Department of the Navy, *Patrol Coastal Class Tactical Manual* (Washington, DC: Government Printing Office, May 1993), 1-1.

⁹ Ibid., 2-1.

¹⁰ Ibid.

¹¹ Authors personal experience during training conducted for PC-9's final NSW evaluation, Puerto Rico 1995.

¹² OPNAVINST C3501.304, Enclosure (1), (1 Feb, 1994).

¹³ Department of the Navy, *Projected Operational Environment (POE) and Required Operational Capabilities (ROC) for PC-1 (Cyclone) Class Patrol Coastal Ships*. (1 February 1994).

¹⁴ Ibid.

¹⁵ Surface capable variant of the stinger missile.

¹⁶ Author's personal experience during training conducted for PC-9's final NSW evaluation, Puerto Rico, 1995.

¹⁷ Ibid.

¹⁸ Office of the Chairmen, Joint Chiefs of Staff, Joint Publication 3.05, *Employment of SOF* (Washington, DC: Government Printing Office, October 1992).

¹⁹ Ibid., GL-20.

²⁰ Army Special Operations Forces, *Vision 2010* (Washington, DC: Government Printing Office, April 1997), 5.

²¹ Ibid.

²² Ibid., I-4, I-5.

²³ Ibid., 25.

²⁴ Ibid., 20.

²⁵ Ibid., II-5 through II-12.

²⁶ Ibid., III-4, figure III-2.

CHAPTER 3

RESEARCH METHODOLOGY

I designed the methodology used to study the Patrol Coastal Ship to answer the basic questions proposed in this thesis. Does the Patrol Coastal meet Naval special warfare requirements? Did the designers base the vessel's parameters on historical tenets of special operations? Are NSW forces familiar with the Patrol Coastal's capabilities?

The entering assumption is, in developing a new platform, designers would incorporate past operational and doctrinal tenets of special warfare into the vessel's design. This asset would need to fill a void in blue water operations that current NSW assets are unable to fill. Initially, however, the PC would need to fill contractual specifics identified in the numerous letters and documents that funded and placed the basic operational parameters on the craft. The first documents to study would be those that funded and placed the vessel on the drawing board.

Shipbuilders base the design of Naval vessels on a series of controlling documents. These documents guide the engineers in developing the craft. For the Patrol Coastal this was the *Letter of Operational Requirements*.¹ Drafted from this document a *Circular of Requirements* further identifies craft capabilities.² Produced from these papers is a *Projected Operational Environment and Required Operational Capabilities* manual and the *Patrol Coastal Class Tactical Manual*.^{3 4} Once the ship is in service, these documents are further refined and specify how the vessel is to operate.

The next avenue of approach in answering the thesis questions was to study the operational and tactical manuals associated with special operations. The Patrol Coastal was proposed to fill a void in a blue water capability by special operations craft. Therefore, does the PC possess those tenets, characteristics, and values historically associated with special operations? USSOCOM Publication 1, *Special Operations in Peace and War* and JP 3.05, *Doctrine for Special Operations*, identify and establish the principles of special operations.^{5 6} It would seem reasonable that any equipment or platform designed and developed for special operations employment would embellish these principles.

Throughout the development of the Patrol Coastal and its inaugural years in service there were discussions on the designation of the craft as a ship. The designation as a ship occurred almost by fate and for reasons that had nothing to do with its intended mission and ultimate employer, NSW. The final piece to this thesis was the development and issuance of a survey concerning the Patrol Coastal to its end users, the NSW forces themselves.

Seventy-five NSW personnel took part in the survey, which tested overall knowledge of the Patrol Coastal and its operational employment as well as garnered a pulse on belief of the craft's utility. The survey was both "forced choice" (multiple choice) and "open ended." Participants were provided the opportunity to give individual comments and were tested on their basic knowledge of the Patrol Coastal. The survey identified the population according to rank, past assignments, and whether or not the

resondent had been employed on Patrol Coastal. Annex A contains the survey. Chapter 4 details the results.

My viewpoint comes from being in on virtually the ground floor of the operational validation of the PC vessel and will be explained in Chapter 4. My viewpoint on all aspects of the *Patrol Coastal(PC) Ship: Then, Now, and in the Future*, are detailed in Chapter 5. To garner information, I conducted interviews with civilian and special forces personnel associated with the program from its inception. These interviews are the basis for much of the historical background on the development of the vessel and its designation as a USS.

Chapter 5 details conclusions drawn from the research of the documents listed in the bibliography. Conclusions, recommendations for further study, and closing statements complete this thesis.

¹ Letter from the Office of the Chief of Naval Operations, *Operational Requirements* OR #238-03-88, (12 December 1998).

² Department of the Navy, Naval Sea Systems Command, *Circular of Requirements* {15 September 1989, (Revision 2)}.

³ Department of the Navy, *Projected Operational Environment and Required Operational Capabilities for PC-1 Class Patrol Coastal Ships* (Washington, DC: Government Printing Office, February 1994).

⁴ Department of the Navy, *Patrol Coastal Class Tactical Manual* (Washington, DC: Government Printing Office, May 1993).

⁵ USSOCOM Publication 1, *Special Operations in Peace and War* (January 1996).

⁶ Office of the Chairman, Joint Chiefs of Staff, *Joint Publication 3.05 Employment of Special Operations Forces* (Washington, DC: Government Printing Office, October 1992).

CHAPTER 4

RESEARCH RESULTS

The results of this thesis are threefold. First, comparing and contrasting the various documents that define special operations' and the Patrol Coastal's history, characteristics, and evolution, reached one ultimate conclusion--common themes occur throughout publications. Second, in presenting this study on the Patrol Coastal, I conducted a survey to measure the extent to which Naval special forces are knowledgeable of the Patrol Coastal and its operations. Overall, individuals who had knowledge of the Patrol Coastal's capabilities had a greater belief in its utility. Those who did not, thought less of the vessel's utility in special warfare. In my opinion, the perception of utility affects the synergism between ship crews and the forces that embark on them. Third, in conducting any study there are going to be some insufficiencies. These insufficiencies do not detract from the piece. However, they do need to be discussed to ensure thoroughness in the research.

The documents that detail the PC's development, capabilities, and limitations have many aspects in common with historic tenets and characteristics of Naval Special Operations Forces. These commonalties manifest themselves in maneuver, communications, sustainment, intelligence, mobility, and logistics.

Webster's New World Dictionary defines maneuver as "a skillful or shrewd move: stratagem, to manage or plan skillfully, to move by some scheme."¹ Maneuver as a principle of war is to "Posture military forces and other resources to place the enemy in

a position of disadvantage through the flexible application of combat power.”² Special forces depend on maneuver and mobility in all operations. The Patrol Coastal provides a platform for maneuver and mobility on a much larger scale than special forces have had under OPCON in the past. The capability to independently deploy, insert forces, collect intelligence, and conduct feints or demonstrations along hundreds of miles of coastline is new and unique to special forces and requires new strategies and schemes to be effectively employed. The PC’s strategic, operational, and tactical range provides the opportunity for SOF mission planners to broaden avenues of approach, expand target lists, and influence an operation from blue, green, and brown water positions. When special forces operate along these larger and more inclusive fronts, it is vital to maintain positive communications. More than any other asset under OPCON of special forces, the PC provides this communications connectivity. This is the second commonality between historic special warfare tenets and the PC’s capabilities.

Special forces are employed on strategic, operational, and tactical levels of war. All levels demand dedicated, reliable, and capable communications. There is not an asset owned and operated by the NSW community that has communications capabilities equal to that of the Patrol Coastal. The communications suite on the Patrol Coastal works in all mediums (HF through VHF) and can transfer photo, voice, and data via satellite or landline in secure or nonsecure modes. More important, special forces task and train PC personnel. When properly organized, this dedicated platform provides connectivity unparalleled in the special operations community. As noted in Chapter 2, special forces are increasingly working with and for joint forces. The PC’s

communications suite is capable of doing this. Communications connectivity with combined forces is also possible and has proven reliable.³

Unforeseen factors cause mission delay or postponement. Before the advent of the Patrol Coastal, Naval special forces had few options for sustaining themselves in a theater without host-nation or sister-service assistance. By being virtually self-sufficient, the Patrol Coastal and embarked special forces units expand the options and, more important, the time in which to exercise those options for theater and NSWTG commanders. The *Patrol Coastal Class Tactical Manual* states that the Patrol Coastal's "maximum expected crew endurance at Condition II is 10 days."⁴ This is only a standard to assist in planning. Forces can exceed this limitation by proper preparation or reduce this limitation when events exist that dictate high-speed transits and, thus, high fuel usage. Neither of these situations are predictable with 100 percent accuracy. However, logistic planning for special operations is a vital cog in the overall plan.

Logistic requirements for special operations from the planning stage through mission execution are many. "Special operations must be sustainable and sustained or they will fail."⁵ NSW operators require all classes of materiel to sustain operations. Besides basic health and human subsistence items, NSW personnel require fuel, ammunition, medical, and major end items such as spare or replacement boats, motors, and equipment. NSW personnel require space and time to repair and shape equipment requirements for each mission. They also require space and materials to conduct mission analysis and platoon leader orders (PLO) and briefings. With proper planning and training the Patrol Coastal can provide this logistic sustainment.⁶

NSW owns and operates Patrol Coastal ships. The PC's logistic support capabilities should mirror the requirements of SEALs. This is true for the majority of NSW support needs.⁷ However, in my opinion, logistic support by the Patrol Coastal for NSW requirements needs improvement. Chapter 5 discusses this further.

The need for intelligence information in war and military operations other than war (MOOTW) is vital. This area of warfare, in part, spurred the establishment of the special forces. Special forces provide information on enemy location, strength, and movement. In MOOTW this same information and much more is gathered on the local population for coordinating myriad missions. The Patrol Coastal's intelligence-gathering capabilities and connectivity to higher authority is significantly increased from the "baseline" Patrol Coastal with the recent addition of the Privateer system and the enhancements to the communications suite. These systems, if properly integrated into special warfare mission execution, provide significant capabilities and responsiveness to special forces.⁸

Incorporating the PC's maneuver, communications, sustainment, intelligence, mobility, and logistics capabilities into SOF mission planning and execution is the key to success for incorporating the Patrol Coastal into the Naval special warfare community. Educating NSW personnel to this capability is equally important. To this end, this thesis includes a survey that tested NSW personnel's knowledge and familiarity of the Patrol Coastal.

Seventy-two Navy special forces personnel from two separate commands completed a survey assessing their knowledge of the Patrol Coastal and their attitude

concerning the vessel's utility in NSW.⁹ Annex A contains the survey in its entirety.

The results are tabulated in the following tables.

Table 3. Rank and number of survey respondents

Rank	No. Polled
E1-E4	6
E5-E9	49
W1-W4	3
O1-O4	14

The population surveyed consisted of 14 officers (from ensign to lieutenant commander), 3 warrant officers, and 55 enlisted personnel.

Table 4. Overall knowledge of the Patrol Coastal Ship

Rank	Knowledgeable	Lacked Basic Knowledge
E1-O4	74%	26%

Overall knowledge about the Patrol Coastal by special forces personnel surveyed is good. This indicates that information concerning the vessel's capabilities and limitations is known and understood by the individuals the ship is designed to support.

Question 21 polled whether the respondents thought the Patrol Coastal was a significant, marginal, or luxury asset for NSW.

Table 5. Overall belief in utility of the Patrol Coastal Ship

Rank	Significant Asset	Marginal Asset	Luxury Asset
E1-O4	39%	49%	12%

Overall, most individuals surveyed felt the vessel was only marginally capable of supporting special forces. However, a fairly large percentage indicated that the vessel is a significant asset from which to conduct special operations.

Tables 6 and 7 compare responses based on the respondent's knowledge and his belief in the PC's utility.

Table 6. Knowledgeable respondents' belief in utility of the Patrol Coastal Ship

Knowledgeable	Significant Asset	Marginal Asset	Luxury Asset
E1-O4	40%	50%	10%

Table 7. Respondents with poor knowledge and their belief in utility of the Patrol Coastal Ship

Poor Knowledge	Significant Asset	Marginal Asset	Luxury Asset
E1-O4	36%	45%	19%

Having a basic working knowledge of the vessel increases belief in its utility. Whereas only slightly greater percentages are seen in the marginal and significant categories when comparing Tables 6 and 7, almost twice the percentage of respondents who have poor knowledge of the Patrol Coastal felt the vessel was a luxury asset when compared to those respondents who had a good working knowledge of the ship. This statistic is significant. It is this type of uninformed perception that can cause an asset to be misused or underused by planners and operators.

Table 8. Rank of respondents and belief in the utility of the Patrol Coastal Ship

Rank	Significant Asset	Marginal Asset	Luxury Asset
E1-E4	66%	16%	16%
E5-E9	35%	54%	11%
W1-14	33%	33%	33%
O1-O4	26%	60%	14%

A statistically significant percentage of officers and senior enlisted personnel (E5-E9) believe that the Patrol Coastal is only marginal in its utility to special warfare. Sixty-six percent of junior personnel (E1-E4) believe the Patrol Coastal to be a significant asset to special warfare. This disparity is very interesting. Are junior personnel more flexible and open to changes in their community, or are they inexperienced in special warfare and therefore incapable of measuring the utility of a newly assigned asset? The topic of flexibility and change will be discussed in Chapter 5.

The PC's communications capability is significant. How knowledgeable of that capability is NSW personnel, and does the Patrol Coastal satisfy their needs? Question 9 asked respondents what communications medium was most vital to special warfare operations and to what degree the Patrol Coastal satisfied that requirement.

Table 9. Overall belief in PC communications capability to support special operations

Response	Knowledgeable	Poor Knowledge
Strongly Disagree	16%	0%
Disagree	4%	22%
Agree	53%	7%
Strongly Agree	2%	4%
Don't Know	25%	67%

Again, those individuals who had knowledge of the Patrol Coastal had a greater belief in the utility of the ship's communications suite.

The "free text" portion of the survey provides insight into the beliefs NSW personnel hold concerning the Patrol Coastal's utility and is very interesting and enlightening. The responses are to questions on the PC's mission and its role in

“Maneuver Warfare” and “Forward From the Sea” and what improvements, if any, the respondent would make to the vessel. The responses are categorized by rank, knowledge of the vessel (Y/N), and whether the individual feels the vessel is a significant (S), marginal (M), or luxury (L) asset for special operations. If a response was given more than once, the comment is followed by () with the number of like responses indicated.

Table 10. Free text comments on the role of the PC in “Maneuver Warfare,” “Forward From the Sea,” and suggested improvements to the ship

Rank	Knowledge of the PC (Y/N)	Utility (S/M/L)
E1-4	N	S
<ul style="list-style-type: none"> * Infil[tration] and exfil[tration] of special forces. * Counter Drug enforcement, SEAL support. 		
E1-4	N	L
<ul style="list-style-type: none"> * Ship was unable to receive satellite communications from the beach and pass to higher authority. * Ship is not a great platform [from which] to conduct special operations from. 		
E1-4	Y	S
<ul style="list-style-type: none"> * Fast transportation for special forces (x2) 		
<hr/>		
E5-9	N	S
<ul style="list-style-type: none"> * Use in support of clandestine coastal special operations. 		
E5-9	N	M
<ul style="list-style-type: none"> * Use for coastal patrol/counterdrug operations-not special operations. * Never heard of Patrol Coastal. * Infil[tration] and exfil[tration] of special forces (x2) * Upgrade communications to be more compatible with SEALS 		
<ul style="list-style-type: none"> * Cannot envision the Patrol Coastal doing anything that cannot be accomplished using RHIBS and/or Zodiacs. * Use Patrol Coastal as a long-range delivery asset for SEALS. 		

E5-9

N

L

- * Support special operations in coastal and delta environment. There is no role for the PC that is not better done by Amphibious Ready Group (ARG) SEAL Platoon and SBU detachment (RHIBS). A PC is a large, expensive platform that can only support one half of a platoon (8 men). Deck area is too small. Required to stack Zodiacs, and the crane is too weak to raise and lower a loaded Zodiac. Ships communications could not monitor enough nets to ensure communications with platoon.
- * Use for drug interdiction. Upgrade ship to include a surface-to-air missile.

E5-9

Y

S

- * Tremendous asset to fleet commander in support of special operations.
- * Insertion of SEALs in open seas. (x2)
- * Provides offshore capability for special warfare forces. Project special warfare assets over the horizon without relying on larger more traditional Naval vessels.
- * Coastal patrol and interdiction. SEALs and SBU support. (x3)
- * Ship is a fast response platform that small special warfare units may use as a forward operating base. Upgrade surface-to-air capability to include the Phalanx system.
- * Patrol Coastal is worldwide deployable. Will become primary asset because of its close in-shore capability. Upgrade communications equipment to be fully interoperable with SOF and blue water Navy.

E5-9

Y

M

- * Support coastal interdiction and in-shore fire support. (x2)
- * Coastal patrol and interdiction and SEALs support. (x8)
- * Upgrade stern arrangement with “skid” configuration to launch and recover PBLs. (x2)
- * Upgrade stern arrangement to recover Zodiacs more efficiently. Provide more area for gear storage and berthing.
- * Fair weather platform for inserting and extracting NSW forces from blue water to shore and is a great Coast Guard asset for counter drug operations.
- * Use for enforcement of United Nations sanctions.
- * Upgrade to change crewing requirements to 9533 designator (combat craft crewmember).

W1-4

Y

S

- * Coastal patrol. Use for landing of small force fighters in remote locations.

W1-4

Y

ML

- * The Patrol Coastal is coming to the NSW community [whether or not] we want them. Work in coastal patrol and interdiction role. Force projection in a permissive environment. Limited application in a semipermissive environment. PCs are a congressional pork barrel project and a direct result of poorly written operational

- * Use in SOF support, insertion and extraction. Upgrade to 35-mm gun. The craft is a long-range platform owned and controlled by NSW.
 - * Support of NSW operations. "Homebase" for successive seal operations, saving SEALs, RHIBs, or MK Vs long transits to the same AOR. Use for CSAR, FID/ Port calls in smaller harbors. Upgrade with surface-to-surface missile system. Upgrade communications suite to parallel NSW.
-

The following deductions are made from the free text portion of the survey.

Several junior personnel (E1-E4), who had poor knowledge of the vessel, did not believe the vessel was a viable platform from which to conduct special operations. However, some who were familiar with the role of the Patrol Coastal felt the vessel was a significant asset. Several senior enlisted personnel (E5-E9), who showed a basic knowledge of the Patrol Coastal wrote that the Patrol Coastal was a worldwide deployable asset and of significant value to special operations. This is notable, for it is precisely that capability (2,000-mile transit range) that the Patrol Coastal was designed to provide. However, like their junior counterparts, they indicated that improvements needed to be made to the insertion and extraction method capabilities and compatibility of special warfare communications equipment. Several E5-E9 personnel, who showed poor knowledge of the Patrol Coastal, saw no role for the Patrol Coastal in special warfare. Those individuals felt that the Special Boat Units and their RHIBs and Zodiacs could accomplish everything Patrol Coastals could. The latter comments may indicate several attitudes. First, the individuals may be reluctant to change in the NSW community. Second, these comments may indicate a lack of understanding in the

uncertainty of future operations and the ability of a craft with PC capabilities to increase the flexibility of theater commander responses. And, finally, responses which disregard any PC use by special forces may indicate the individual personally experienced poor PC support during an exercise, evaluation, or operation. This highlights the requirement for the PC to be dedicated in support of NSW.

The compatibility of communications equipment between special forces units and the need for improvement in insertion and extraction methods of SEALs boats from the stern of the Patrol Coastal are vital concerns. These concerns are addressed in the improvements to the communications package and the alteration to PC-9's stern arrangement. In my opinion, those who believe that RHIBs and Zodiac boats can accomplish everything which the Patrol Coastal is capable are either extremely ignorant of the PC's capabilities or are unwelcome to a change in special warfare and the systems that are designed to implement those changes. As Chapter 1 noted, the PC is designed to support special forces and to relieve outdated NSW craft and units of the multitude of international requests for training opportunities. It demands cooperation and flexibility by NSW and PC operators to introduce successfully the PC into unit operations.

Officers comments shadowed those of their junior counterparts, with emphasis on support to special forces. The need to upgrade communications and overall equipment compatibility between special forces and the Patrol Coastal is also important to the officers surveyed. The officers listed the need to upgrade shipboard gun systems and targeting capabilities as improvements they would make to the Patrol Coastal. However, major changes (76-mm, harpoon, surface-to-air missile, and surface-to-surface missile

systems) regardless of their utility, are impractical to implement given the ROC & POE under which the ship operates. Changes that improve the smaller caliber weapons systems currently employed on the Patrol Coastal are valuable suggestions.

This survey clearly indicates that the more knowledge special forces personnel have about the Patrol Coastal, the more significant an asset it is thought to be. In the free text portion of the survey, the term "support" is written 21 times. Coupled with comments stating the poor utility of the vessel and the need for additional SEAL-support equipment and self-defense upgrades, there appears to be a notion that the vessel, whereas useful for support to special forces, is not a special forces asset. This is an important point and I will discuss it further in chapter 5.

There are several insufficiencies in this study. The author could not evaluate all joint publications, Naval warfare publications, and special forces doctrine, that provide insight into special operations use of the Patrol Coastal. The author did not evaluate results in the training cycle of the Patrol Coastal for shortfalls in PC support to special forces, nor did I contact survey participants as to the reasons behind some of their responses. The reader should also understand that within this thesis the author discusses aspects of the PC vessel and bases analysis on the subject on his own personal experience.

In 1994 I was assigned as the Officer in Charge of the Precommissioning Unit for a Patrol Coastal and, ultimately, became the Commanding Officer of USS Chinook (PC-9). Those were the three most gratifying and educational years of my career. I developed a very positive attitude toward the utility, flexibility, and employability of this NSW asset

and acquired what I believe to be a prodigious amount of knowledge and unique perspective on the subject. Therefore, generalizations that are made are based on my personal experience as well as informal conversations I held throughout my tenure in the Patrol Coastal program.

¹ *Webster's New World Dictionary of the American Language* (New York, NY: Warner Books, Inc. 1987), 366.

² Department of the Army, FM 100-25, *Doctrine for Army Special Operations Forces* (Washington, DC: Government Printing Office, December 1991), 2-13.

³ PC-9 deployment to EUCOM and operations conducted with British, Spanish, and Danish special forces, July-December 1996.

⁴ Department of the Navy, *Patrol Coastal Class Tactical Manual* (Washington, DC: Government Print Office, May 1993).

⁵ FM 100-25, 14-1.

⁶ Personnel experience gained through EUCOM deployment and NSW training November 1995-December 1996.

⁷ Ibid.

⁸ PC-9 deployment to EUCOM and operations conducted with British, Spanish, and Danish special forces, July-December 1996.

⁹ The survey consists of 21 questions. Questions 1 to 6 poll the rank, experience, and contact personnel have had with the Patrol Coastal. Responses to questions 7 to 17 determine whether an individual is knowledgeable of PC's capabilities and limitations. The individual is knowledgeable of the vessel if he answers correctly a majority of questions (7).

CHAPTER 5

CONCLUSIONS

The PC's primary mission is maritime support of NSW. The shipbuilder constructed the vessel from a set of standards developed by the special forces that it is designed to support and in harmony with historical tenets and the "Truths, Values, and Characteristics" of special operations. However, these standards, and therefore the ships, do not fit the traditional mold of NSW craft. This thesis supports the convention that whereas the roles, functions, and missions of the armed forces are changing, the basic tenets and principles of operations are not. These changing missions and roles requires all services, including NSW, to change the way their tenets and principles are applied to all levels of operations. I submit that the Patrol Coastal is a product of that change.

The dangers we face in the post-Cold War era--regional conflict, weapons proliferation, increased ethnic and nationalistic competition, a decline in the relative economic strength of the nation, and the possible turning away from reform and democracy by Russia or other nations now groping toward democratic governments--may not be the same kinds of direct threats we lived with during the Cold War, but they dictate that military force will continue to be a key instrument for the United States in the years ahead.

The changes will be defined by how the nation deals with the perennial issues of how much military is enough, what the military structure should look like, what it should do, and how it should do it. But this time the old answers will no longer suffice because the nation has embarked on a quest for a new consensus on national security and the role of military force in preserving it.¹

This quote by Admiral William A. Owens, USN (Retired), addresses a changing and complex world. MOOTW is becoming more and more prevalent in military planning and more numerous in force deployments. It is precisely this change in emphasis that has caused a shift in the requirements and capabilities of the assets designed for military use.

The Patrol Coastal is a commissioned USS, assigned to a force that was initially unfamiliar with the administrative requirements and operational capabilities of a vessel of its kind. As shown in Chapter 2, historic characteristics of special warfare are inherent in the design and qualities of the Patrol Coastal. However, these qualities--maneuver, mobility, sustainment, logistics, and communications--are applied to warfare differently than NSW (specifically the small unit level operators to which the vessel is assigned) applied them in the past. Only through time and practice will the utility of the vessel be fully realized.

The Patrol Coastal is designed for LIC scenarios. Alterations to the vessel that directly support special forces and their employment are the only alterations planners should pursue. To this end, this thesis recommends alterations that reduce the radar cross-section of the Patrol Coastal and exterior paint schemes that deny or delay enemy targeting. NSWC should pay attention to all aspects of support, from connectivity between special forces and the Patrol Coastal to increased space for special forces personnel. I also suggest the need for improvements and training to guarantee communications connectivity up and down the chain of command. PC-9 is currently undergoing shipboard testing of the CCRS. This system will insert and extract a 10-meter RHIB and the SDV from the stern of the vessel. Is the ship upgraded with the support requirements for these new systems? These questions require attention, truthful answers, and are recommended for further study.

This thesis answers three questions. One, does the Patrol Coastal meet the Naval special operations forces requirements? Yes. The Patrol Coastal is a vessel operated in

support of special operations. It is expensive to operate and maintain when compared to other craft that NSW forces operate. The administrative and operational requirements of the Patrol Coastal has increased the size of the SBRs twofold. There are requirements placed on the Patrol Coastal, because of its designation as a USS, that demand time, money, and resources to satisfy. However, the Patrol Coastal brings character, tradition, and personality to the NSW community that only a commissioned vessel can bring. When these characteristics are harnessed, they create a real synergy. The Patrol Coastal crews are trained and tasked in support of special forces by special forces. These ships, unlike traditional U.S. Navy and Air Force support assets, are under OPCON to special forces and are deployed in support of special operations. There are no competing mission requirements that conflict with the PC's primary mission. This, in and of itself, makes the PC far superior to the conventional support that Naval special forces receive from traditional Naval assets and her sister service.

Secondly, the designers based the PC's parameters on historical tenets and characteristics of special operations. As this thesis demonstrates, the application of military force has evolved over time. Assets designed and employed in future conflicts will be markedly different from those of today. Just as the maritime assets Union forces employed in the Civil War are different than those used in World War II and in *Desert Shield* and *Desert Storm*, the PC is markedly different from the MKIII PB that NSW forces operated in 1988. However, the basics of military operations do not change. The designers built the Patrol Coastal with historical tenets and characteristics of special operations in place.

Finally, NSW forces are familiar with the basic PC capabilities. Seventy-five percent of special forces personnel surveyed were familiar with the PC's capabilities and characteristics. Many of those who were not, view the vessel as only marginal or limited in its application to special operations. This viewpoint is shortsighted and limits the effectiveness and employability of this system. As Admiral Owens notes, the military environment is changing rapidly. Today, the U.S. military faces global challenges that require measured responses at all levels of war. The Patrol Coastal is another system, another tool in the toolbox, to respond to those challenges. The NSW community needs to accept this changing environment and the assets developed to conduct these new missions.

The importance of this study is twofold: First, special forces personnel who embark on a Patrol Coastal need to understand the capabilities and limitations of the ship, and be aware of the demands placed on the ship because of its designation as a commissioned vessel and the operational advantages gained by that designation. Conversely, PC officers and crew need to understand that the ship is designed, funded, and deployed to support special forces. It is vital to be aware of these forces' history and background in addition to individual mission requirements. This thesis hopes to provide this understanding. Second, the Patrol Coastal Class ship has capabilities that are new to special forces. It can deploy worldwide with very little support from host nations or interservice assistance. It can communicate globally with joint and combined forces.² And, it can operate in green, brown, and blue water scenarios. However, it is the

application of this asset to the changing military environment that requires ingenuity and resolve to employ and operate properly.

¹ William A. Owens, *High Seas, The Naval Passage to an Uncharted World* (Annapolis, MD: Naval Institute Press, 1995), 1.

² PC-9 deployment to EUCOM and operations conducted with British, Spanish, and Danish Special Forces, (July-December 1996).

APPENDIX A

PATROL COASTAL (PC) THESIS SURVEY

(Please follow the directions at each question/statement for marking your response.)

1. Rank (circle only one)

O-1 O-2 O-3 O-4 O-5 O-6 E-1 through E-4 E-5 through E-9

2. Experience. (circle all applicable)

Special Boat Unit
Seal Delivery Vehicle Team
Seal Team
Other _____

3. Have you ever been on board a PC?(circle one)

Yes No

4. Who is the Immediate Superior in the Patrol Coastal's Chain of Command?

5. Have you ever worked in real world operations in company with a PC?(circle one)

Yes No

6. Have you ever exercised in company with a PC?(circle one)

Yes No

If yes, circle all applicable

Pierside familiarization
Individual Unit exercise
Major Fleet Exercise (JTFEX)
Other _____

7. How many years have the PC's been in active service?(circle one)

01-03 04-07 08-10 11-15

8. How many PC's are in the inventory?(circle one)

01-05 06-10 11-15

9. What communication medium/spectrum is most vital to you?
(circle one from each column)

LF	DATA	SECURE
HF	VOICE	CLEAR
UHF		
VHF		
SHF		
EHF		

Does the PC satisfy your requirements?(circle one)

STRONGLY DISAGREE
DISAGREE
AGREE
STRONGLY AGREE
DO NOT KNOW

10. What is the transit/cruise range (unrefueled) of the vessel?(circle one)

500 - 1000 1001- 1500 1501- 2000 2001- 2500 2501- 3000

11. What is the maximum speed, in knots, of the PC?(circle one)

15 20 25 30 35 40 45

12. How many crew members are permanently assigned to the PC?(circle one)

10 15 20 25 30 35 40

13. What is the sea state limit, in feet, for the vessel?(circle one)

46 8 10 12 14 16

14. What is the draft, in feet, of the vessel?(circle one)

46 8 10 12 14 16

15. Are you aware of any intelligence support capabilities on board the PC?(circle one)

YES NO

16. Are you aware of any real world operations conducted by the PC's?(circle one)

YES NO

The following questions are provided in order to gauge perceptions. Please be as detailed as you can. Feel free to write on the back or add additional sheets.

17. What is the primary mission of the Patrol Coastal?

18. What roles do you see for the PC's in the context of "Forward From the Sea"?

19. What roles do you see for the PC's in the context of "Maneuver Warfare"?

20. What changes or additions to the PC's armament and/or equipment would you propose to add to its utility, if any? (circle one)

NO CHANGES

CHANGES (see comments below)

21. Do PCs represent a significant asset for theater forces in Special Operations or are they a marginal or luxury asset?

SIGNIFICANT MARGINAL LUXURY

BIBLIOGRAPHY

Articles

- Joergensen, Tim Sloth. "U.S. Navy Operations in Littoral Waters: 2000 and Beyond." *Naval War College Review*, Spring 1998, p. 20-29.
- Gourley, Scott R. "Cyclones in the Littoral." *Sea Power*, February 1998, p. 37-39.
- Jasper, Scott. "Does Maritime Patrol Have a Future?" United States Naval Institute. *Proceedings*, April 1997, p. 74-77.
- Dring, Timothy R. "Can We Protect Our Coasts?" United States Naval Institute. *Proceedings*, February 1998, p. 60-63.

Books

- Babbie, Earl R. *Survey Research Methods*, 2d ed. Belmont, CA: Wadsworth Publishing Co., Inc., 1990.
- Behar, David S. *Invasion : The American Destruction of Noriega*. Los Angeles, CA: Americas Group, 1990.
- Bosiljevac, T. L. *SEALS : UDT/SEAL Operations in Vietnam*. New York : Ivy Books, 1991.
- Burrowes, Reynolds A. *Revolution and Rescue in Grenada : An Account of the U.S.-Caribbean Invasion*. New York: Greenwood Press, 1988.
- Dockery, Kevin. *SEALS in Action*. New York: Avon Books, 1991.
- Fawcett, Bill. *Hunters and Shooters: An Oral History of the U.S. Navy SEALs in Vietnam*. New York: W. Morrow, 1995.
- Kelly, Orr. *Brave Men, Dark Waters: The Untold Story of the Navy SEALs*. Novato, CA: Presidio Press, 1992.
- _____. *Never Fight Fair! Navy SEALs' Stories of Combat and Adventure*. Novato CA: Presidio Press, 1995.
- McLeavy, Roy. *Naval Fast Strike Craft and Patrol Boats*. New York: Blanford Press, 1979.

- Moise, Edwin E. *Tonkin Gulf and the Escalation of the Vietnam War*. Chapel Hill, NC: 1996.
- O'Shaughnessy, Hugh. *Grenada: Revolution, Invasion, and Aftermath*. London: Spere Books, 1984.
- Owens, William A. *High Seas, The Naval Passage to an Uncharted World*. Annapolis, MD: Naval Institute Press, 1995.
- Salant, Priscilla, and Don A. Dillman. *How to Conduct Your Own Survey*. New York: John Wiley and Sons, Inc., 1994.
- Streissguth, Thomas. *U.S. Navy SEALs*. Minneapolis, MN: Capstone Press, 1996.

Government Documents

- Department of the Army, FM 100-25, *Doctrine for Army Special Operations Forces*. Washington, DC: Government Printing Office, December 1991.
- Department of Defense, *Authorization for Appropriations for Fiscal Year 1996 and the Future Years Defense Program*. Tuesday, February 14, 1995. Unified Commanders on their Military Strategies and Operational Requirements.
- _____. Joint Publication 3-0, *Doctrine for Joint Operations*. Washington, DC: Government Printing Office, February 1, 1995.
- _____. Joint Publication 3-05, *Doctrine for Joint Special Operations*. Washington, DC: Government Printing Office, 28 October 1992.
- _____. United States Special Operations Command Publication 1, *Special Operations in Peace and War*, Washington, DC: Government Printing Office, January 25, 1996.
- _____. *Army Special Operations Forces, Vision 2010*. Washington, DC: Government Printing Office, April 1997.
- Department of the Navy. "Forward... From the Sea," *The Navy Operational Concept*. March 1997. Foreword by Admiral Jay L. Johnson, U.S. Navy, Chief of Naval Operations.
- _____. *Patrol Coastal PC 1 Class Tactical Manual U*. Washington, DC: Government Printing Office, May 1993.

Interviews

Byers, Jack. Phone interview with Naval Sea Systems Command, 20 May 1997, conducted at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas.

Doyle, Dennis. Phone interview with Naval Sea Systems Command, PMS 300, 13 May 1997, conducted at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas.

Reive, Captain. Phone interview with OPNAV 851, 16 May 1997, conducted at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas.

Wright, Jon. Phone interview with Commander Special Boat Squadron 2, 15 May 1997, conducted at the U.S. Army Command and Staff College, Fort Leavenworth, Kansas.

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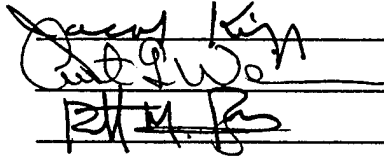
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